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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/986,114

11/07/2001

Akio Yamamoto

3673-0125P

4907

2292

7590

05/17/2004

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EXAMINER

SENGI, BEHROOZ M

ART UNIT

PAPER NUMBER

2613

6

DATE MAILED: 05/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/986,114

Applicant(s)

YAMAMOTO ET AL.

Examiner

Behrooz Senfi

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's arguments with respect to independent claims 1, 3 and 6 have been fully considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 - 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin et al (US 5,489,099) in view of Vock et al (US 6,320,173).

Regarding claim 1, Rankin '099 discloses the claimed limitations "a ball motion measuring apparatus, comprising; Camera for photographing a flying ball ..... " (i.e. figs. 1 and 2, video camera 25), and "a display section for displaying ..... " (i.e. fig. 2b), and "calculating section for carrying out a magnifying process on only a portion of an image data and where the magnified image is used to calculate ball motion" reads on (figs. 3 and 5, col. 3, lines 56+). Rankin '099 teaches "Video camera for photographing" but fails to explicitly teach "CCD camera for photographing". However, such features are well known and used as evidenced by Vock '173 (i.e. col. 2, lines 21+). Therefore, taking the combined teaching of Rankin '099 and Vock '173 as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to use a CCD

video camera type which is a miniature type of the camera as an alternative for tracking and collecting successive pictures of the tracking ball, as taught by Vock '173.

Regarding claim 2, combination of Rankin '099 and Vock '173 teach the claimed "viewing angle of 10 degrees or more" (i.e. fig. 1, angle  $\phi$  of Vock).

4. Claims 3, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin et al (US 5,489,099) in view of Yokota et al. (US 5,905,530).

Regarding claim 3, Rankin '099 teaches the claimed limitations "a ball motion measuring apparatus, comprising; Camera for photographing a flying ball ..... " (i.e. figs. 1 and 2, video camera 25, and abstract). Rankin '099 fails to explicitly teach, "correcting a coordinate error of only a ball image in the original image made by a distortion of an original image which is caused by a lens of the camera and calculate true coordinates of the ball image". However, such features are well known and used in the prior art as evidenced by Yokota '530 (i.e. figs. 35, 41, and abstract, lines 10 – 12, col. 9, lines 50+ and col. 30, lines 15+). Therefore, taking the combined teaching of Rankin '099 and Yokota '530 as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to improve the image pickup apparatus for correcting a distortion of an image necessarily occurring due to a photographing lens (distortion correction) as taught by Yokota.

Regarding claim 6, the limitations claimed are substantially similar to claim 3, therefore the grounds for rejecting claim 3 also apply here.

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Regarding claim 4, combination of Rankin '099 and Yokota '530 teaches "correction ratio determined by a distance from the center of the original image," reads on (fig. 19, col. 9, lines 35+ of Yokota '530).

5. Claims 5 and 7 - 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin '099 in view of Vock '173 further in view of Yokota '530.

Regarding claim 9, combination of Rankin '099 and Vock '173 teaches "a ball motion measuring apparatus, comprising; CCD camera for photographing a flying ball ..... " and "a display section for displaying ..... " (i.e. figs. 1 of Vock, and figs. 1 and 2 of Rankin). The combination of Rankin '099 and Vock '173 fails to explicitly teach, "correcting a coordinate error of only a ball image in the original image made by a distortion of an original image which is caused by a lens of the camera and calculate true coordinates of the ball image". However, such features are well known and used in the prior art as evidenced by Yokota '530 (i.e. figs. 35, 41, and abstract, lines 10 - 12, col. 9, lines 50+ and col. 30, lines 15+). Therefore, taking the combined teaching of Rankin '099 and Vock '173 and Yokota '530 as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to improve the image pickup apparatus such as a video camera for correcting a distortion of an image necessarily occurring due to a photographing lens (i.e. distortional aberration) as taught by Yokota.

Regarding claim 10, the limitations claimed are substantially similar to claim 9; therefore the grounds for rejecting claim 9 also apply here.

Regarding claims 5 and 7 – 8, combination of Rankin '099 and Vock '173 and Yokota '530 teach the claimed "camera has a horizontal view angle of 10 degrees or more" (i.e. figs. 1, 3a and 5 of Vock).

***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(703)305-0132**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Chris Kelley** can be reached on **(703)305-4856**.

**Any response to this action should be mailed to:**

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Commissioner of Patents and Trademarks

Washington, D.C. 20231

**Or faxed to:**


**(703) 872-9314**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

B. S. B. S.

5/10/2004



CHRIS KELLEY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600